

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
16 June 2005 (16.06.2005)

PCT

(10) International Publication Number
WO 2005/053649 A1

(51) International Patent Classification⁷: **A61K 9/14, 9/50**

(21) International Application Number:
PCT/US2003/034897

(22) International Filing Date:
5 November 2003 (05.11.2003)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant (*for all designated States except US*): **THE GOVERNMENT OF THE UNITED STATES OF AMERICA** as represented by **THE SECRETARY OF HEALTH AND HUMAN SERVICES** [US/US]; Office of Technology Transfer, 6011 Executive Boulevard, Bethesda, MD 20852-3804 (US).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **BARCHI, Joseph,**

J., Jr. [US/US]; National Cancer Institute at Frederick, 376 Boyles Street, P.O. Box B, Building 376, Room 209, Frederick, MD 21702 (US). **SVAROVSKY, Sergei, A.** [RU/US]; National Cancer Institute at Frederick, Laboratory of Medicinal Chemistry, 376 Boyles Street, Frederick, MD 21702 (US).

(74) Agents: **GOLLIN, Michael, A.** et al.; **VENABLE LLP**, P.O. Box 34385, Washington, DC 20043-9998 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),

[Continued on next page]

(54) Title: **BIOFUNCTIONALIZED QUANTUM DOTS FOR BIOLOGICAL IMAGING**

(57) Abstract: Novel biofunctionalized quantum dots include a mercaptoalkanoic acid linked to the surface of a nanocrystalline core and a bio-functional group linked to the surface. Biofunctionalized quantum dots are made by a novel synthesis method. Biofunctionalized quantum dots can be used in imaging or therapy applications.

WO 2005/053649 A1



Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE,
SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA,
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

— *of inventorship (Rule 4.17(iv)) for US only*

Published:

— *with international search report*

Declarations under Rule 4.17:

— *of inventorship (Rule 4.17(iv)) for US only*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.